

SEMICONDUCTOR PROCESS CHAMBER ELECTRODE

ABSTRACT OF THE DISCLOSURE

Disclosed is an electrode used for processing a semiconductor wafer through plasma etching operations. The electrode is disposed within a process chamber that includes a support chuck for holding the semiconductor wafer and a pair of RF power sources. The electrode has a center region, a first surface and a second surface. The first surface is configured to receive processing gases from a source and to flow the processing gases into the center region. The second surface has a plurality of gas feed holes that are continuously coupled to a corresponding plurality of electrode openings. Electrode opening diameters are greater than gas feed hole diameters. The plurality of electrode openings define an electrode surface that is over a wafer surface. The electrode surface assists in defining an electrode plasma sheath surface area which causes an increase in bias voltage onto the wafer surface, thereby increasing the ion bombardment energy over the wafer without increasing the plasma density.